

MORE AMERICAN SPIDERS OF THE GENUS
CHRYSO (ARANEAE, THERIDIIDAE)*

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In a previous paper (Levi, 1955) I revised the genus *Chryso*, which I thought at the time to be a compact group of closely related species quite distinct from *Theridion*, and all coming from America. However, soon after publishing a description of the genus *Arctachaea* for only two species (Levi, 1957), I discovered species intermediate between the new genus and *Chryso*.

Though species bridging genera have been found in various groups of theridiids, it was a surprise to see the description of *Argyria venusta* Yaginuma, 1957 (Figs. 3-5) from Japan, a species close to *Chryso* and having similar habits, but less specialized in genitalic structure. Soon several other species were examined that are best placed in *Chryso* unless we want numerous monotypic genera. One of these species is *Argyrodes nigra* O. P.-Cambridge (Figs. 1, 2) from Ceylon (with genitalia superficially resembling those of *Theridion punctosparsum* Emerton) though it has the palpus still less specialized than does *Chryso venusta* (Yaginuma). Allied to *Chryso nigra* (O. P.-Cambridge) is the American *Chryso nigrosternum* Keyserling (Fig. 13). Several of the species now placed in *Chryso* have the cymbium modified [e.g. *Chryso perplexa* (Keyserling), Fig. 18], and bridge the gap to the two species previously placed in *Arctachaea*. Further, a male of *Chryso cambridgei* (Petrunkevitch) (Figs. 43-47) bridges the gap between the latter groups and the species tentatively placed in *Meotipa*. *Meotipa* is a genus of doubtful validity; the male of the type species remains unknown. The three species placed in *Meotipa* differed from *Chryso* mainly by their longer legs and by a somewhat different shape of abdomen.

There is still some doubt that the groups considered in this paper are monophyletic. Certainly all are related to *Theridion*, from which they can be separated by the modified shape of the abdomen and by the more specialized palpus. The specialization of the palpus, however, may go in different directions. Most species resemble the *T. frondeum* group. A distally truncate cymbium, otherwise rare in theridiids, is common in *Chryso* and probably indicates relationship. Another unusual character, grooves on the sides of the abdomen, is found in some of the species here considered to belong to *Chryso* and

*Manuscript received by the editor April 18, 1962.

may be further evidence of common origin. In addition, several species have teeth on the posterior margin of the chelicerae.

I would like to thank Dr. W. J. Gertsch for the loan of collections from the American Museum of Natural History (AMNH); Dr. A. M. Chickering for large collections from Panama and Jamaica now in the Museum of Comparative Zoology; for additional collections Mrs. D. L. Frizzell (Dr. H. Exline) of Rolla, Missouri; Mrs. Frizzell and Dr. E. S. Ross for specimens from the California Academy of Sciences (CAS); Dr. O. Kraus of the Senckenberg Museum, Frankfurt (SMF); and Dr. R. V. Chamberlin for a specimen of the University of Utah collection (UU); Dr. E. Dresco, Paris, for making drawings of *Meotipa* species; Prof. M. Vachon of the Muséum National d'Histoire Naturelle, Paris (MNHN); Prof. G. C. Varley of the Hope Department of Entomology, Oxford, and Dr. G. O. Evans, Mr. E. Browning, and Mr. K. Hyatt of the British Museum, Natural History for their hospitality while visiting their institutions. A. Riedel and J. Prószyński of the Polish Academy of Sciences, Warsaw (PAS); Dr. L. Brundin, Riksmuseum, Stockholm, Mr. T. Yaginuma, Osaka, and Dr. J. V. Scorza, Caracas loaned valuable specimens. A National Science Foundation grant (G-4317) made possible a trip to Europe to examine types and the National Institute of Health grant (E-1944) facilitated completion of the study and publication of the manuscript.

Chryso O. P.-Cambridge

- Chryso* O. P.-Cambridge, 1882, Proc. Zool. Soc. London, p. 429. Type species by original designation *Chryso albomaculata* O. P.-Cambridge.
Meotipa Simon, 1892, Histoire Naturelles des Araignées, 1: 519. Type species by original designation *Meotipa picturata* Simon.
Physcoa Thorell, 1895, Descriptive Catalog of the Spiders of Burma, p. 83. Type species by original designation *Physcoa scintillans* Thorell.
Argyria Yaginuma, 1957, Acta Arachnologica, 15: 11. Type species by original designation *Argyria venusta* Yaginuma. Homonym of *Argyria* Huebner, 1818, and *Argyria* Robineau-Desvoidy, 1863.
Argyroaster Yaginuma, 1958, Acta Arachnologica, 15: 37. New name for *Argyria* Yaginuma preoccupied.
Arctachaea Levi, 1958, Psyche, 64: 102. Type species by original designation *Arctachaea pelyx* Levi.

Diagnosis. *Chryso* differs from *Theridion* by a hump or posterior dorsal extension of the abdomen; from *Achaearanea* by having a much more complicated palp containing a radix; from *Argyrodes* and *Spintharus* by lacking a colulus (Levi and Levi, 1962).

Comments. The types of *Chryso nigriceps* Keyserling and *Helvibis sulcata* Keyserling have been examined since publishing my paper in

1957. The specimens given those names were correctly identified.

The following species have recently been misplaced in *Chryso*: *Chryso maronica* Caporiacco, 1954 (Comm. Pontificia Acad. Sci. 16: 74) is *Achaearanea hirta* (Taczanowski). NEW SYNONYMY. *C. pentagona* Caporiacco, 1954, *ibid.*, 16: 75 belongs to *Achaearanea*.

While many species of *Chryso* are strikingly colored, the coloration usually cannot be used for determination or as a key character. As in most theridiids, it is variable, e.g. *Chryso compressa* (Keyserling) has a striking black sternum and abdomen with a black venter in Brazil, but the venter is yellow in Peruvian specimens. Uyemura (1957) has observed rapid color change in *Chryso venusta* (Yaginuma) when disturbed. Probably other species of *Chryso* can also change color.

Species of *Chryso* are absent from the United States and Canada except *C. albomaculata* and *C. clementinae* (Map) found in the southeastern states and the two species previously placed in *Arctachaea* found from Wyoming to Alaska. None are known from Chile or southern Argentina. Most species are found in the hotter parts of America, where the spider fauna is least known, and our knowledge of the species and their distribution is fragmentary.

Key to the American species of *Chryso*

- 1a. Mesal tip of male cymbium with teeth (1957, figs. 11-13), female chelicerae toothless; Wyoming to Alaska 2
- 1b. Cymbium without teeth; female chelicerae usually with teeth; southeastern United States to South America 3
- 2a. Mesal corner of cymbium projecting (1957, figs. 12, 13); female abdomen higher than long *C. pelyx* (Levi)
- 2b. Mesal corner of cymbium rounded (1957, fig. 11); female abdomen longer than high *C. nordica* (Chamberlin and Ivie)
- 3a. Males 4
- 3b. Females 25
- 4a. Thread-shaped portion of embolus originating in center of bulb, looping towards outside and base before continuing straight towards distal end (1955, figs. 1-5) 5
- 4b. Embolus otherwise 11
- 5a. Width of area enclosed by embolus loop almost equals width of basal portion of embolus (1955, fig. 15); Huánuco, Peru
..... *C. mariae* Levi
- 5b. Width of area enclosed by embolus loop at least twice width of basal portion of embolus thread (1955, figs. 7, 9, 13) 6
- 6a. Median apophysis with a large thorn (1955, fig. 13); Amazon, Peru *C. sulcata* (Keyserling)

- 6b. Median apophysis without thorn 7
- 7a. A thorn on ectal side of palpal bulb (1955, figs. 7, 9) 8
- 7b. No thorn on ectal side of bulb 9
- 8a. Radix with evenly rounded swelling; ectal thorn large (1955, fig. 7); Panama *C. vallensis* Levi
- 8b. Radix with round boss; ectal thorn small (1955, fig. 9); Panama, Peru *C. diplosticha* Chamberlin and Ivie
- 9a. Radix with a swelling; conductor almost lanceolate in ventral view (1955, fig. 11); coloration as in 1955 fig. 12; Panama *C. indicifer* Chamberlin and Ivie
- 9b. Radix without swelling; conductor hook-shaped (1955, fig. 1-6); coloration otherwise 10
- 10a. Radix with a mesal fold, (1955, figs. 1-4); abdomen usually with spots; North Carolina to Brazil *C. albomaculata* O. P.-Cambridge
- 10b. Radix without fold (1955, figs. 5, 6); abdomen without discrete spots; Panama to Argentina *C. vexabilis* Keyserling
- 11a. Prominent ventral embolus biforked (Figs. 8, 13) 12
- 11b. Embolus otherwise 13
- 12a. Embolus long, reaching base of bulb (Fig. 13); southern Brazil *C. nigrosternum* Keyserling
- 12b. Embolus short, covering distal two-thirds of bulb (Fig. 8); Minas Gerais *C. gounellèi* sp. n.
- 13a. Distal end of cymbium truncate 14
- 13b. Distal end of cymbium rounded 15
- 14a. Ventral view as in Fig. 18; southern Barzil *C. perplexa* Keyserling
- 14b. Ventral view as in Fig. 28; Venezuela *C. simoni* sp. n.
- 15a. With long thread-shaped embolus of even diameter (Fig. 23); Costa Rica to Trinidad *C. questona* sp. n.
- 15b. Embolus otherwise 16
- 16a. Embolus corkscrew-shaped, on distal end of bulb (Figs. 89, 94) 17
- 16b. Embolus otherwise 18
- 17a. Embolus larger than remaining portion of bulb (Fig. 89); abdomen higher than long; Panama to Ecuador *C. silva* sp. n.
- 17b. Embolus one-third length of remaining portion of bulb (Fig. 95); abdomen longer than high; Costa Rica, Panama *C. volcanensis* sp. n.
- 18a. Embolus with distal portion hook-shaped (Fig. 47); Mexico to Venezuela *C. cambridgei* (Petrunkevitch)
- 18b. Embolus otherwise 19

- 19a. Two transparent sickle-shaped structures on venter of bulb (Fig. 42); Colombia to Bolivia *C. vittatula* (Roewer)
- 19b. Palpal bulb without sickle-shaped structures 20
- 20a. Conductor prominent and with distal hook (Fig. 74); cosmopolitan *C. clementinae* (Petrunkevitch)
- 20b. Conductor otherwise 21
- 21a. Embolus a ventral bottle-shaped structure (Fig. 69); Peru to Brazil *C. compressa* (Keyserling)
- 21b. Embolus otherwise 22
- 22a. Median apophysis not apparent in ventral view (Fig. 30); southern Brazil *C. arops* sp. n.
- 22b. Median apophysis visible in ventral view 23
- 23a. Median apophysis in distal half of bulb, palpus lightly sclerotized (Fig. 79); Panama *C. melba* sp. n.
- 23b. Median apophysis mostly on proximal half of bulb; palpus heavily sclerotized 24
- 24a. Palpus as in Figure 36, 37; Colombia to Bolivia
..... *C. ecuadorensis* Levi
- 24b. Palpus as in Figure 51; Venezuela
..... *C. barromachadoi* Caporiacco
- 25a. Epigynum with openings in coiled borders of fossa (Fig. 78); Costa Rica to Trinidad *C. questona* sp. n.
- 25b. Epigynum otherwise 26
- 26a. Ducts showing through epigynal wall long and coiled, openings indistinct (Figs. 82, 84) 27
- 26b. Epigynum otherwise 28
- 27a. Ducts loosely coiled in large loops (Fig. 83); Panama
..... *C. alecula* sp. n.
- 27b. Ducts tightly coiled (Fig. 85); Trinidad *C. arima* sp. n.
- 28a. Epigynum with a central black mark (Fig. 45); sternum, venter black; Mexico to Venezuela *C. cambridgei* (Petrunkevitch)
- 28b. Epigynum otherwise; sternum and venter usually not black (except *C. compressa*, *C. nigrosternum*) 29
- 29a. Openings of epigynum widely separated (Fig. 88); Panama to Ecuador *C. silva* sp. n.
- 29b. Epigynum otherwise 30
- 30a. Epigynum with a light, oval swelling, bordered all around (Figs. 34, 35, 40) Colombia to Bolivia 31
- 30b. Epigynum otherwise 32
- 31a. A dark mark anterior to swelling (Figs. 34, 35)
..... *C. ecuadorensis* Levi
- 31b. A dark mark posterior to swelling (Fig. 40)
..... *C. vittatula* (Roewer)

- 32a. Epigynum with a light swelling bordered anterior and sides (Fig. 50); Venezuela *C. barromachadoi* Caporiacco
- 32b. Epigynum otherwise 33
- 33a. Epigynum with openings near posterior margin in a depression, ducts loop anterior (Fig. 54); southern Brazil
..... *C. ribeirao* sp. n.
- 33b. Epigynum otherwise 34
- 34a. Epigynum with a central fossa 35
- 34b. Epigynum without fossa 41
- 35a. Two openings in center of fossa (Fig. 93); Costa Rica, Panama
..... *C. volcanensis* sp. n.
- 35b. Epigynum otherwise 36
- 36a. A black circular mark on each lateral end of fossa (Fig. 73); cosmopolitan *C. clementinae* (Petrunkevitch)
- 36b. Epigynum otherwise 37
- 37a. Fossa far anterior, usually bordered on sides only (Fig. 27); Venezuela *C. simoni* sp. n.
- 37b. Fossa in center or posterior, bordered anterior or posterior as well as sides 38
- 38a. Fossa in a dark spot; ducts visible posterior to fossa (Figs. 16, 17); Brazil, Argentina *C. rubrovittata* (Keyserling)
- 38b. Epigynum otherwise 39
- 39a. Narrow ducts leading from sides into fossa (Figs. 57, 62) 40
- 39b. Ducts wider and leading from anterior into fossa (Figs. 64, 66, 67), Peru to Brazil *C. compressa* (Keyserling)
- 40a. Fossa bordered on sides and posterior (Fig. 57); southern Brazil *C. pulchra* (Keyserling)
- 40b. Fossa bordered on sides and anterior (Fig. 62); Minas Gerais ..
..... *C. caraca* sp. n.
- 41a. Epigynal openings in a slit anterior to a dark area (Fig. 60); ducts simple (Fig. 59); San Fernandez Isl.
..... *C. backstromi* (Berland)
- 41b. Epigynal openings otherwise; usually with internal sacs 42
- 42a. Epigynum a central transverse connected dark mark as in Figure 21; Brazil *C. antonio* sp. n.
- 42b. Epigynum otherwise 43
- 43a. Epigynum with two central dark curved marks (Figs. 10, 12); southern Brazil *C. nigrosternum* (Keyserling)
- 43b. Epigynum otherwise 44
- 44a. Epigynum with an anterior dark mark and light posterior as in 1955, fig. 33; head region blackened; Colombia, Ecuador
..... *C. nigriceps* Keyserling
- 44b. Epigynum otherwise, coloration usually otherwise 45

- 45a. Epigynum with two lines, diverging posterior (1955, fig. 31); Panama to Peru *C. diplosticha* Chamberlin and Ivie
 45b. Epigynum otherwise 46
 46a. Epigynum with a transverse dark mark posterior to two spots (1955, fig. 29); Panama *C. vallensis* Levi
 46b. Epigynum otherwise 47
 47a. Epigynum with a transverse line anterior to two spots (1955, fig. 37); southern Brazil *C. sicki* Levi
 47b. Epigynum otherwise 48
 48a. Epigynum with a pair of longitudinal lines in light area posterior to transverse dark mark (1955, fig. 35); dorsum of abdomen with two black long lines which fuse at posterior end; Panama *C. indicifer* Chamberlin and Ivie
 48b. Epigynum otherwise 49
 49a. Carapace dark brown; abdomen with a longitudinal dark band (1955, fig. 20); Peru *C. huanuco* Levi
 49b. Coloration otherwise 50
 50a. Abdomen without discrete white spots; Panama to Argentina *C. vexabilis* Keyserling
 50b. Abdomen usually with white spots; North Carolina to Brazil *C. albomaculata* O. P.-Cambridge

Chryso albomaculata O. P.-Cambridge

Argyrodes elegans Taczanowski, 1872, Horae Soc. Ent. Rossicae, 9: 118, pl. 5, fig. 11, ♀. Female syntypes from Uassa, French Guiana [now Rio Uaçá, Amapa, Brazil] in the Polish Academy of Sciences, Warsaw, examined. NEW SYNONYMY. Not *Theridion elegans* Blackwall, 1862.

Chryso albomaculata O. P.-Cambridge, 1882, Proc. Zool. Soc. London, p. 429, fig. 6, ♀, ♂. Male, female syntypes from the Amazon in the Hope Department of Entomology, Oxford, examined.—Levi, 1955, Jour. New York Ent. Soc., 68: 61, figs. 1-4, 18-19, 25-27, ♀, ♂.

Chryso elegans, — Keyserling, 1884, Die Spinnen Amerikas, Theridiidae 2 (1): 151.

Theridion elegans, — Simon, 1903, Histoire Naturelle des Araignees, 2: 990. *Theridion emendatum* Roewer, 1942, Katalog der Araneae 1: 429. New name for *Argyrodes elegans* Taczanowski. NEW SYNONYMY.

Distribution. Southeastern United States, Mexico, West Indies, northeastern South America to Bahia, Brazil.

Additional records. Lesser Antilles. *Grenada*: St. George's (N. L. H. Krauss, AMNH). *Trinidad*: Mt. St. Benedict (J. G. Myers). *Venezuela*. *Carabobo*: San Esteban, 1888 (E. Simon, MNHN). *Grand Elang. Dist. Fed.*: hacienda Corosal, N of Mt. Silla, 1888 (E. Simon, MNHN). *British Guiana*. Georgetown (A. M. Nadler, AMNH). *Surinam*. Paramaribo. *Brazil. Ceara*: Sierra Com-

munaty (E. Gounelle, MNHN). *Pernambuco*: Recife (SMF; A. M. Nadler, AMNH). *Bahia*: Salvador (A. M. Nadler, AMNH); Terra Nova (MNHN).

Chryso vexabilis Keyserling

Chryso vexabilis Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, 2(1): 155, pl. 7, fig. 96, ♀, ♂. Syntypes from N. Granada [now Ecuador, Colombia, Panama, Venezuela] in the British Museum, Natural History, examined. — Levi, 1955, Jour. New York Ent. Soc., 63: 63, figs. 5, 6, 23, 24, ♀, ♂.

Steatoda rubicunda F. P.-Cambridge, 1902, Biologia Centrali-Americana, Araneidea, 2: 386, pl. 36, fig. 21, ♂. Male type from Bugaba, Panama in the British Museum, Natural History, examined. (Not *Theridion rubicunda* Nicolet, 1849.) NEW SYNONYMY.

Theridion rubicundulum Roewer, 1942, Katalog der Araneae, 1: 498. New name for *Theridion rubicunda* (F. P.-Cambridge). NEW SYNONYMY.

Examination of Keyserling's type indicated that this species had been correctly determined. The internal female genitalia of Argentine specimens like the ones from Panama, have the posterior portion of the sacs of the internal genitalia ending in narrow extensions (Levi, 1955, fig. 23) quite different from the broadly rounded sacs of *C. albomaculata*. Unlike *C. albomaculata* it has no white spots on abdomen.

Distribution. Panama to Argentina.

Additional records. *Venezuela*. *Dist. Fed.*: hacienda Corosal, ♀, ♂ (E. Simon, MNHN). *Ecuador*. *Guayas*: Milagro, ♀, ♂ (H. E., D. L. Frizzell); Río Chimbo, ♂ (Edwards, MNHN). *El Oro*: Arenillas (E. L. Moore). *Brazil*. *Bahia*: Salvador, ♀, (E. Göldi, MNHN); Rio Salobre, ♀ (E. Gounelle, MNHN, doubtful det.). *Argentina*. *Córdoba*: Cosquín, ♀.

Chryso diplosticha Chamberlin and Ivie

Chryso diplosticha Chamberlin and Ivie, 1936, Bull. Univ. Utah, biol. ser., 3(5): 36, fig. 83, ♀. Female type from Barro Colorado Island, Panama Canal Zone in the University of Utah Collection. — Levi, 1955, Jour. New York Ent. Soc., 63: 65, figs. 9, 30, 31, ♀, ♂.

Distribution. Nicaragua, Panama, Trinidad and Dept. Huánuco, Peru.

Additional records. *Nicaragua*: Musawas, Waspuc River, ♂ (B. Malkin, AMNH). *Lesser Antilles*. *Trinidad*: Simla near Arima, ♂ (A. M. Nadler, AMNH).

Chryso indicifer Chamberlin and Ivie

Chryso indicifer Chamberlin and Ivie, 1936, Bull. Univ. Utah, biol. ser., 3(5): 36, figs. 82, 96, ♀. Female type from Barro Colorado Island in the

University of Utah collection.—Levi, 1955, Jour. New York Ent. Soc., 63: 66, figs. 11, 12, 17, 34, 35, ♀, ♂.

Distribution. Panama to Peru.

Additional records. *Venezuela.* *Dist. Fed.* Caracas, (E. Simon, MNHN). *Carabobo:* La Cumbre, S. of San Esteban, (E. Simon, MNHN). *Ecuador.* *Guayas:* Milagro, (H. E., D. L. Frizzell); Río Chimbo, (MNHN). *El Oro:* Arenillas, (E. L. Moore); Pasaje, (R. Walls). *Peru.* *Huánuco:* Monzón Valley, Tingo María, ♀, ♂ (E. I. Schlinger, E. S. Ross, CAS).

Chryso gounellei sp. n.

Figures 6-8

Type. Male from Caraça, Minas Gerais, Brazil (E. Gounelle), in the Muséum National d'Histoire Naturelle, Paris (no. 9487). The species is named after E. Gounelle who collected for E. Simon.

Description. Carapace orange, eye region black. Sternum black. Legs yellowish to gray. Abdomen white with two black spots above spinnerets (Fig. 7), sometimes also with a pair of anterior spots. Carapace low and flat. Anterior median eyes larger than others, one and one-third their diameter apart, three-quarters from laterals. Posterior median eyes one and one-quarter their diameter apart, one and one-half from laterals. Chelicerae with three teeth on anterior margin, the middle one smallest, five sharp teeth posterior (Fig. 6). Abdomen longer than wide with indistinct grooves on sides (Fig. 7). Total length 1.9 mm. Carapace 1.0 mm long, 0.8 mm wide. First femur, 1.1 mm; patella and tibia, 1.1 mm; metatarsus, 0.9 mm; tarsus, 0.5 mm. Second patella and tibia, 0.9 mm; third, 0.6 mm; fourth, 0.9 mm.

Diagnosis. The two prongs of the embolus (Fig. 8) of *C. gounellei* are shorter than those of the related *C. nigrosternum* (Keyserling).

Record. 6 paratypes collected with holotype.

Chryso nigrosternum Keyserling

Figures 9-13

Theridium rotundum Keyserling, 1891, Die Spinnen Amerikas, Brasilianische Spinnen, 3: 191, pl. 6, fig. 137, ♀. Female type from N. Freiburg [Nova Friburgo, Est. Guanabara], Brazil in the British Museum, Natural History, examined. NEW SYNONYMY.

Chryso nigrosternum Keyserling, 1891, Die Spinnen Amerikas, Brasilianische Spinnen, 3: 206, pl. 7, figs. 148, ♀, ♂. Female, male syntypes from Taquara do Mundo Novo, [Rio Grande do Sul], Brazil in the British Museum, Natural History, examined. The female syntype is in poor condition.

Note. The similarity of my illustrations of the female types of the two names was not noted until some time after the examination. Keyserling's descriptions, except for the color of the abdomen, are also similar. Although *rotundum* has page priority, the name *Chryso nigrosternum* Keyserling is used here, because the male palpus is very distinct while the epigyna are not. Figures 11, 12 were made from the type of *T. rotundum*, Figures 9, 10, 13 from those of *C. nigrosternum*.

Chryso rubrovittata (Keyserling), new combination

Figures 14-17

Faiditus rubrovittatus Keyserling, 1884, Die Spinnen Amerikas, Theridiidae, 2(1): 159, pl. 7, fig. 98, ♀. Female type without locality in the Hope Department of Entomology at Oxford University, examined. It probably came from South America.

Faiditus lacteovittatus Mello-Leitão, 1945, Rev. Museo La Plata, nueva serie, sec. Zool., 4: 233, fig. 7. Female type from Puerto Victoria, Misiones, Argentina in the La Plata Museum, examined. NEW SYNONYMY.

Description. Female from Pernambuco. Carapace, sternum, legs yellow. Abdomen grayish white with a dorsal, longitudinal white band and some white pigment spots (Fig. 14). Eyes subequal in size. Anterior median eyes one and one-half diameters apart, their radius from laterals. Posterior median eyes one and one-half diameters apart, their radius from laterals. Chelicerae with two teeth on anterior margin. Abdomen without lateral grooves (Fig. 14). Epigynum with central, sclerotized opening having a posterior lip (Figs. 16, 17). Total length 3.9 mm. Carapace 1.11 mm long, 1.02 mm wide. First femur 2.10 mm; patella and tibia 1.95 mm; metatarsus 1.62 mm; tarsus 0.78 mm. Second patella and tibia 1.17 mm; third 0.75 mm; fourth 1.30 mm.

EXPLANATION OF PLATE 14

Figs. 1, 2. *Chryso nigra* (O. P.-Cambridge) (Ceylon). 1. Left palpus. 2. Epigynum cleared.

Figs. 3-5. *C. venusta* (Yaginuma) (Japan). 3. Female genitalia, dorsal view. 4. Epigynum. 5. Palpus.

Figs. 6-8. *C. gounellei* sp. n. 6. Male left chelicera, posterior view. 7. Abdomen, dorsal view. 8. Palpus.

Figs. 9-13. *C. nigrosternum* Keyserling. 9, 11. Female genitalia, dorsal view. 10, 12. Epigynum. 13. Palpus.

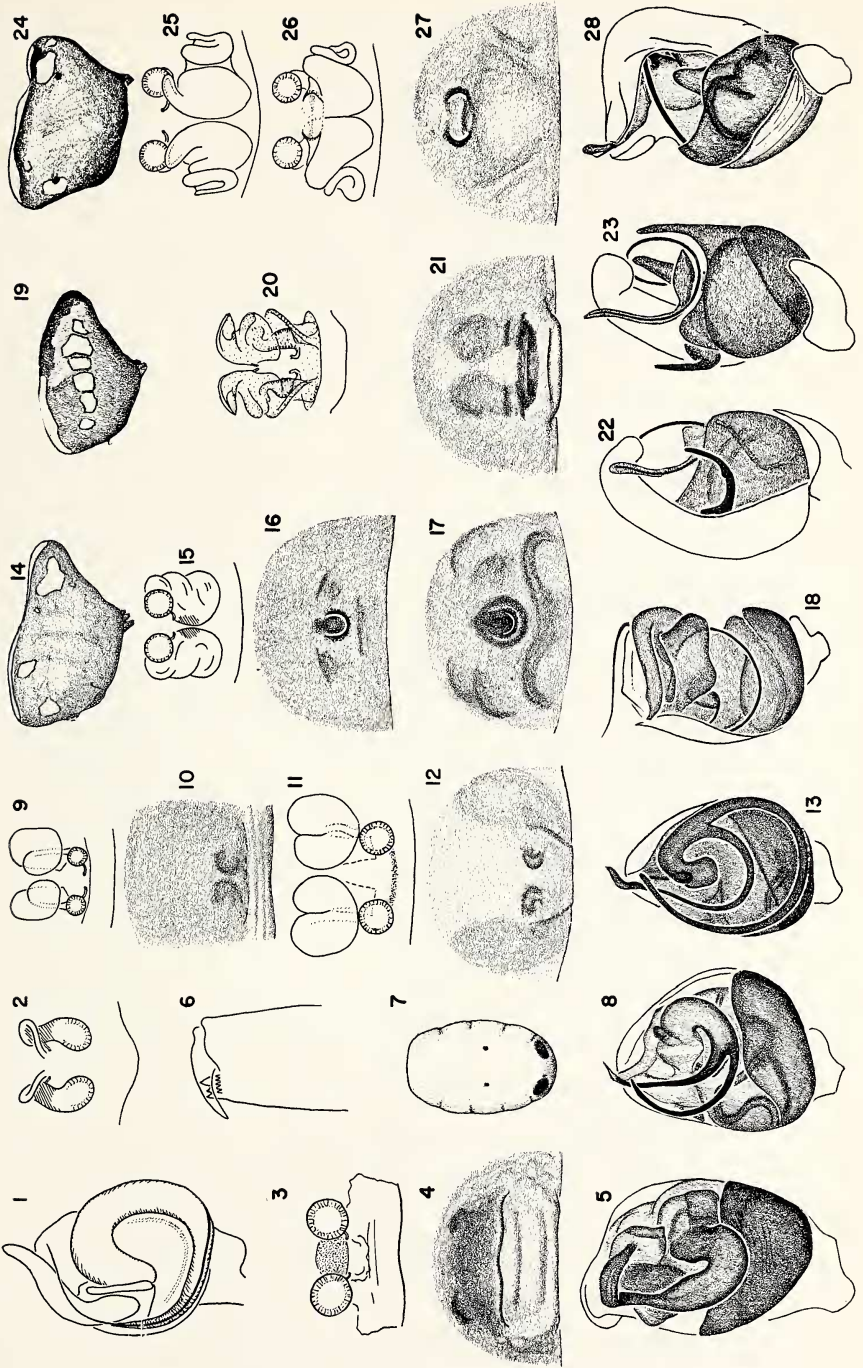
Figs. 14-17. *C. rubrovittata* (Keyserling). 14. Female abdomen, lateral view. 15. Female genitalia, dorsal view. 16, 17. Epigynum.

Fig. 18. *C. perplexa* Keyserling. Palpus.

Figs. 19-21. *C. antonio* sp. n. 19. Female abdomen, lateral view. 20. Female genitalia, dorsal view. 21. Epigynum.

Figs. 22, 23. *C. questona* sp. n. palpus. 22. Mesal view. 23. Ventral view.

Figs. 24-28. *C. simoni* sp. n. 24. Female abdomen, lateral view. 25. Female genitalia, dorsal view. 26. Epigynum cleared. 27. Epigynum. 28. Palpus.



Figures 15, 16 were made from the type of *Faiditus rubrovittatus*.
Distribution. Brazil, Argentina.

Record. Brazil. Pernambuco: Recife, ♀ (SMF); Minas Gerais: Caraça, ♀ (E. Gounelle, MNHN).

Chryso perplexa Keyserling

Figure 18

Chryso perplexa Keyserling, 1886, Die Spinnen Amerikas, Theridiidae, 2(2): 242, pl. 20, fig. 296, ♂. Male type from Blumenau, [Santa Catarina], Brazil in the British Museum, Natural History, examined. Figure 18 was prepared from the type.

Record. Brazil. Santa Catarina: Nova Teutonia, lat 27° 11' S, long 52° 23' W, ♂ (F. Plaumann, SMF).

Chryso antonio sp. n

Figures 19-21

Type. Female from São Antonio de Barro [Condeúba, Bahia], Brazil (E. Gounelle), in the Muséum National d'Histoire Naturelle, Paris (no. 11518). The specific name is a noun in apposition after the type locality.

Description. Carapace dark brown, dusky on sides. Chelicerae, sternum black. Legs yellowish. Abdomen with dorsal white patch and five white spots on sides on gray background a darker, indistinct gray band behind dorsal white spot continuing to a black posterior tip (Fig. 19). Eyes subequal in size. Anterior median eyes one diameter apart, their radius from laterals. Posterior eyes their diameter apart. Chelicerae with two long teeth on anterior margin. Abdomen without grooves (Fig. 19). Total length 2.5 mm. Carapace 0.85 mm long, 0.65 mm wide. First femur, 1.20 mm; patella and tibia, 0.98

EXPLANATION OF PLATE 15

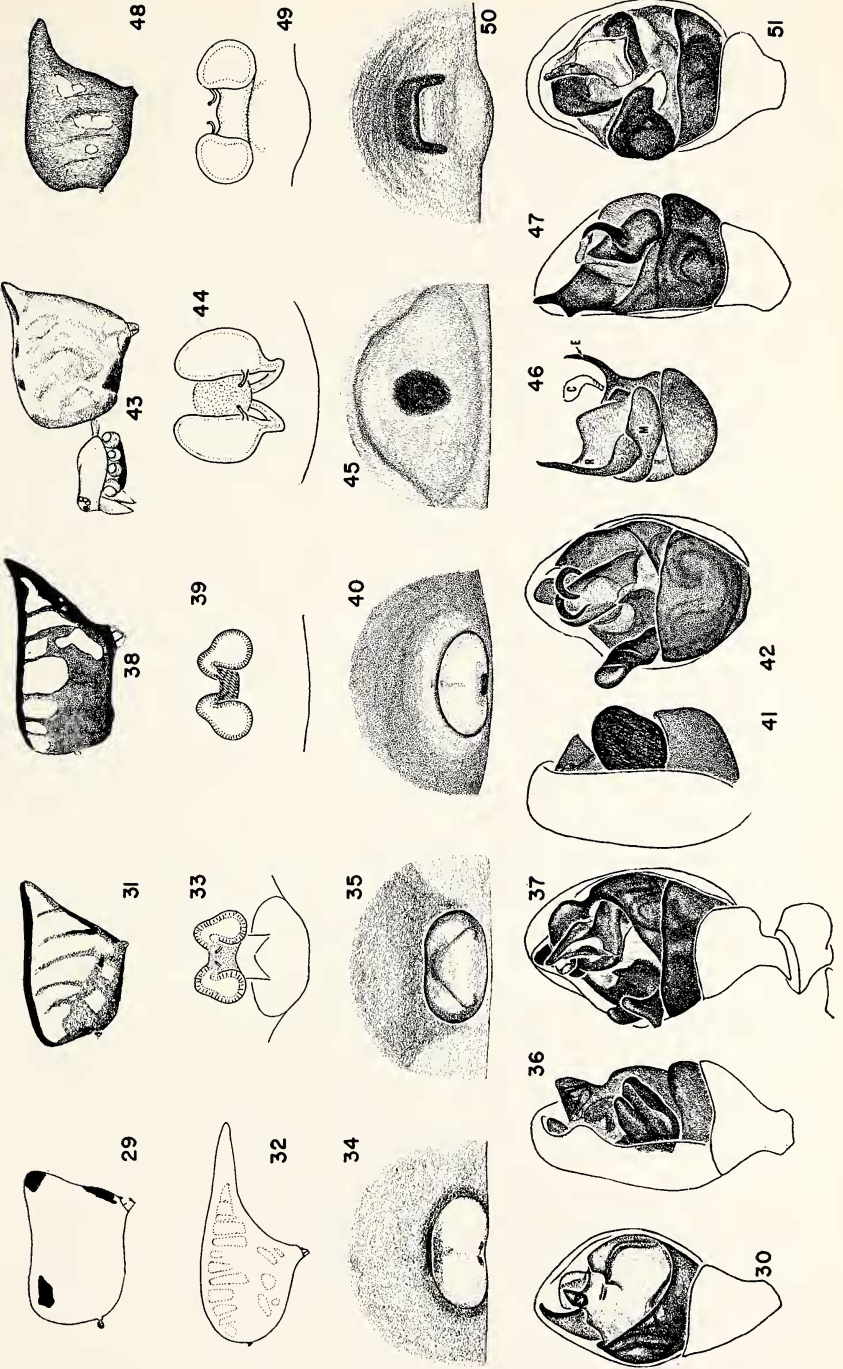
Figs. 29-30. *Chryso arops* sp. n. 29. Male abdomen, lateral view. 30. Left palpus.

Figs. 31-37. *C. ecuadorensis* Levi. 31, 32. Female abdomen, lateral view. 33. Female genitalia, dorsal view. 34, 35. Epigynum. 36, 37. Palpus. 36. Mesal view. 37. Ventral view.

Figs. 38-42. *C. vittatula* (Roewer). 38. Female abdomen, lateral view. 39. Female genitalia, dorsal view. 40. Epigynum. 41, 42. Palpus. 41. Mesal view. 42. Ventral view.

Figs. 43-47. *C. cambridgei* (Petrunkevitch). 43. Female, lateral view. 44. Female genitalia, dorsal view. 45. Epigynum. 46. Palpus expanded, mesal view (cymbium removed; C, conductor; E, embolus; M, median apophysis; R, radix). 47. Palpus.

Figs. 48-51. *C. barromachadoi* Caporiacco. 48. Abdomen of juvenile, lateral view. 49. Female genitalia, dorsal view. 50. Epigynum. 51. Palpus.



mm; metatarsus, 0.78 mm; tarsus, 0.50 mm. Second patella and tibia, 0.71 mm; third, 0.52 mm; fourth, 0.91 mm.

Diagnosis. The epigynum, which has a dark patch in a light transversely folded area (Fig. 21), separates this species from *C. albomaculata*. The sacs of the internal genitalia (Fig. 20) are more complex in shape than in related species.

***Chryso questona* sp. n.**

Figures 22, 23, 76-78

Type. Female from El Valle, Panama, July 1936 (A. M. Chickering), in the Museum of Comparative Zoology. The specific name is an arbitrary combination of letters.

Description. Carapace, sternum, legs whitish. Legs with black rings on middle and distal ends of segments. Abdomen whitish with some black patches (Fig. 76). Chelicerae with two anterior teeth. Anterior median eyes one and one-fourth diameters apart, three-fourths from laterals. Posterior median eyes slightly more than a diameter apart, one diameter from laterals. Eyes of male smaller and slightly farther apart. Legs very long. Total length of female 4.5 mm. Carapace 1.3 mm long, 1.0 mm wide. First femur, 4.9 mm; patella and tibia, 4.5 mm; metatarsus, 4.9 mm; tarsus 1.4 mm. Second patella and tibia, 2.3 mm; third, 1.2 mm; fourth, 2.0 mm. Total length of male 3.0 mm. Carapace, 1.6 mm long. Second patella and tibia, 2.7 mm; third, 1.3 mm; fourth, 2.3 mm.

Diagnosis. The coiled rim of the epigynum (Fig. 78), the coiled ducts (Fig. 77) and the long embolus and narrow cymbium (Figs. 22, 23) distinguish this species from *C. volcanensis*.

Records. *Costa Rica.* San Isidro del General, 600-1200 m, ♀ (D. Rounds). *Panama:* Chiriquí Prov., 1938, ♂ (UU). *Trinidad:* Simla, 29, 30 Dec. 1954, ♀; 26 Feb. 1954, ♀ (A. M. Nadler, AMNH).

***Chryso simoni* sp. n.**

Figures 24-28

Type. Male from Caracas, Venezuela, December 1887 to February 1888 (E. Simon), in the Muséum National d'Histoire Naturelle, Paris (no. 16392). The species is named after the great araneologist E. Simon.

Description. Carapace yellow-brown, slightly darker in cephalic region. Sternum, legs yellow-brown. Abdomen gray with variable white, darker gray or black patches. Some specimens have a median

dorsal white longitudinal band, in others the band is almost black (Fig. 24). Eyes subequal in size. Anterior median eyes about one and two-thirds diameter apart, three-quarters from laterals. Posterior median eyes less than two diameters apart, one from laterals. Anterior median eyes of male slightly farther apart than in female. Chelicerae with two teeth on anterior margin, none on posterior. Abdomen longer than wide or high, with posterior tip of female overhanging (Fig. 24) but posterior tip of male more blunt. Total length of female 3.1 mm. Carapace 1.1 mm long, 1.0 mm wide. First femur, 2.2 mm; patella and tibia, 2.0 mm; metatarsus, 1.9 mm; tarsus, 0.8 mm. Second patella and tibia 1.3 mm; third 0.9 mm; fourth 1.4 mm. Total length of male 2.5 mm. Carapace 1.1 mm long, 0.9 mm wide. First femur, 2.2 mm; patella and tibia, 2.0 mm; metatarsus, 1.9 mm; tarsus, 0.8 mm. Second patella and tibia, 1.3 mm; third, 0.8 mm; fourth, 1.3 mm.

Diagnosis. The palpus of the male (Fig. 28) is quite similar to that of *C. perplexa* Keyserling but can be separated from the latter by the shape and length of the embolus, the base of which lies against the alveolus of the cymbium. The internal female genitalia have a lateral duct loop (Figs. 25, 26) unlike that of the related *C. rubrovittata* (Keyserling). The internal genitalia are asymmetrical in the specimens examined.

Records. 3 ♂ and 3 ♀ paratypes from type collection.

Chryso barromachadoi Caporiacco
Figures 48-51

Chryso barromachadoi Caporiacco, 1955, Acta Zool. Venezuelica, 1: 337.
Juvenile type from Rancho Grande, Aragua, Venezuela, in the Museum at Caracas, examined.

Description. Carapace, sternum dark brown. Legs yellow. Abdomen gray to black with white patches on sides of female (Fig. 48) but lacking in male. Anterior median eyes slightly smaller than others, one and one-half diameters apart, two from laterals. Posterior median eyes one diameter apart one and one-half from laterals. Anterior eyes are slightly closer in male. Abdomen with lateral grooves; female abdomen extension, two-thirds length of abdomen between spinnerets and pedicel. Male abdomen blunt and short. This species can be diagnosed by the genitalia (Figs. 49-51).

Figure 48 was made from the juvenile type specimen.

Records. Venezuela. Aragua: Rancho Grande, March 1945; 20 Dec. 1954 (A. M. Nadler, AMNH); Choróni, 9 March 1959, (A.

M. Nadler, AMNH); *Carabobo*: Le Cumbre, S of San Esteban, 1888 (E. Simon, MNHN).

Chryso cambridgei (Petrunkevitch), new combination

Figures 43-47

Achaea vittata O. P.-Cambridge, 1894, *Biologia Centrali-Americana*, Araneidea, 1: 130, pl. 17, fig. 11, ♀. Female type from Teapa, [Tabasco, Mexico] in the British Museum, Natural History, examined. Not *Argyrodes vittata* Keyserling, *Theridion vittatum* Nicolet.

Thwaitesia vittata, — O. P.-Cambridge, 1896, *op. cit.*, p. 197.

Thwaitesia lepida O. P.-Cambridge, 1896, *op. cit.*, p. 197, pl. 25, fig. 5, ♀. Female type from Teapa, [Tabasco, Mexico] in the British Museum, Natural History, examined.

Chryso splendida Banks, — 1898, *Proc. California Acad. Sci.*, (3)1: 237, pl. 14, fig. 13, ♀. Female syntype from Tepic, Nayarit, Mexico in the Museum of Comparative Zoology, examined.

Theridion vittatum, — F. P.-Cambridge, 1902, *Biologia Centrali-Americana*, Araneidea, 2: 391, pl. 37, figs. 6, 7, ♀, ♂.

Theridion splendidum, — F. P.-Cambridge, 1902, *op. cit.*, p. 391.

Theridion cambridgei Petrunkevitch, 1911, *Bull. Amer. Mus. Nat. Hist.*, 29: 192. New name for *Achaea vittata* thought preoccupied by *Theridion vittatum* Nicolet and for *Thwaitesia lepida* thought preoccupied by *Theridion lepidum* Walckenaer. Reimoser, 1939, *Ann. Naturhist. Museum Wien*, 50: 346. Roewer, 1943, *Katalog der Araneae*, 1: 490. Kraus, 1955, *Abhandl. Senckenbergischen Naturf. Gesell.* 493: 17.

Theridion splendens Roewer, 1942, *op. cit.* p. 498. New name for *Chryso splendida* thought preoccupied by *Theridion splendidum* Taczanowski.

Conopistha acuminata Schenkel, 1953, *Verh. Naturf. Gesell. Basel*, 64: 12, fig. 12, ♀. Two female syntypes from El Pozon, Venezuela in the Naturhistorisches Museum, Basel, examined. NEW SYNONYMY.

Comments. F. P.-Cambridge first suspected that Bank's *splendida* is a synonym of *vittata*. The epigynum, a shallow black depression (Fig. 45) sometimes has an anterior lip. The only male examined was caught in December at Barro Colorado Island by Dr. A. M. Chickering.

Distribution. Mexico to Venezuela.

Records. *Mexico. Veracruz*: 16 km S of San José del Carmen (L. I. Davis, AMNH). *Tabasco*: 3 km NE of Comalcalco (G. Ekholm). *Guatemala*: Variedades, 300 m (C., P. Vaurie, AMNH). *El Salvador*. (Kraus, 1955). *Costa Rica*. (Reimoser, 1938). *Panama*: El Valle. *Panama Canal Zone*: Barro Colorado Island (sev. collections).

Chryso vittatula (Roewer), new combination

Figures 38-42

Argyrodes vittatus Keyserling, 1884, *Die Spinnen Amerikas*, Theridiidae, 2(1): 191, pl. 9, fig. 114, ♀. Female syntypes from St. Fe de Bogota [Bogotá, Colombia] and female, male syntypes from Pumamarca,

[Junín], Peru in the British Museum, Natural History, examined. Homonym of *A. vittatus* Bradley, 1877.

Argyrodes vittatula Roewer, 1942, Katalog der Araneae, 1: 439. New name for *A. vittatus* Keyserling.

Description. Carapace, sternum dark brown, legs yellow. Abdomen with a longitudinal dorsal black band, series of white patches on sides and venter partly black. Eyes subequal in size. Anterior median eyes one and one-half diameters apart, almost two from laterals. Posterior median eyes one diameter apart, one and one-half from laterals. Chelicerae with two teeth on anterior margin. Total length of female 6.7 mm. Carapace 1.6 mm long, 1.2 mm wide. First femur 3.5 mm long; patella and tibia 3.4 mm long; metatarsus 3.0 mm long; tarsus 1.1 mm. Second patella and tibia 1.8 mm; third 1.2 mm; fourth 2.3 mm.

It is uncertain if females have been correctly separated from *C. ecuadorensis*. Females of *C. vittatula* have a dark spot posterior in the light area of the epigynum (Fig. 40). No other differences were noted. The male palpi, however, are very distinct (Figs. 41, 42). Only the availability of larger collections will permit finding characters separating the females. Illustrations were made from the syntypes.

Distribution. Colombia to Bolivia.

Records. Peru. Junín: Pumamarca, ♀, ♂ (PAS). Cuzco: San Miguel, ♀ (H. W. Foote). Bolivia: Tunari-Massiv, 4000 m, 1948, ♀ (Zischka, AMNH).

Chryso ecuadorensis Levi

Figures 31-37

Chryso ecuadorensis Levi, "1955" (1957) Jour. New York Ent. Soc. 63: 66, figs. 16, 38, 39, ♀. Female type from Runtun Trail, Baños, [Tungurahua], Ecuador in the American Museum of Natural History.

Description. Carapace, sternum red-brown. Legs yellow with ends of first tibiae and all tarsi darker to brown. Abdomen with white patches on sides and above spinnerets and with some black pigment in a median dorsal longitudinal line and above spinnerets (Figs. 31, 32). Posterior median eyes slightly larger than other eyes. Anterior median eyes one and one-half diameters apart, two from laterals in female, slightly more than two in male. Posterior median eyes one diameter apart, one and three-quarters from laterals in female; in male one and one-quarter diameters apart, two and one-half from laterals. Chelicerae with two teeth on anterior margin, apparently none posterior. Total length of female from Bolivia 5.5 mm. Carapace 1.7 mm long, 1.3 mm wide. First femur, 3.9 mm; patella and tibia, 3.6 mm; metatarsus, 3.6 mm; tarsus, 1.2 mm. Second patella and tibia, 1.9 mm; third, 1.3 mm; fourth, 2.5 mm. Total length of male from

Bolivia 4.0 mm. Carapace 1.7 mm long, 1.4 mm wide. First femur, 3.7 mm; patella and tibia, 3.5 mm; metatarsus, 4.2 mm; tarsus, 1.2 mm. Second patella and tibia, 2.1 mm; third, 1.4 mm; fourth, 2.3 mm.

Diagnosis. It is not certain whether females have been correctly separated from *C. vittatula* Roewer. The light area of the epigynum has a dark spot anterior (Figs. 34, 35). Only large collections of accompanied females will make the separation of the species possible.

Distribution. Colombia to Bolivia.

Records. *Colombia. Cauca:* 43 km S Popayán, March 1955, ♀ (E. I. Schlinger, E. S. Ross, CAS). *Ecuador. Los Rios:* Macuchi, copper mining camp inland from Río Palenque, March, 1943 ♀ (H. E. Frizzell). *Tungurahua:* Mt. Tungurahua, 1900-2000 m, Apr. 1939, ♀ (W. C. Macintyre); Baños, 1850-2000 m, Apr. 1939, ♀ (W. C. Macintyre, AMNH). *Bolivia.* Chaco, 2000 m, ♀, ♂ (MNHN).

Chryso compressa (Keyserling), new combination

Figures 63-70

Achaea compressa Keyserling, 1882, Die Spinnen Amerikas. Theridiidae, 2(1): 107, pl. 5, fig. 69, ♀. Female type from Amable María, [Junin], Peru in the Polish Academy of Sciences, Warsaw.

Theridion conspersa, — Simon, 1894, Histoire Naturelle des Araignées, 1: 535 (misspelling).

Theridion compressum, — Roewer, 1942, Katalog der Araneae, 1: 491.

Comments. A specimen, presumably collected with the type, in the British Museum, Natural History, was examined. The abdomen resembles *C. cambridgei*, it has slight grooves on sides; a black band covers dorsum.

Description. Carapace yellow-white, yellowish in head region. Sternum yellow in Peruvian specimens, black in Brazilian. Legs yellow-white, distal ends of most leg segments darker yellow with denser, darker hairs. Abdomen with median dorsal colorless area and with white pigment on each side. Brazilian specimens have genital area

EXPLANATION OF PLATE 16

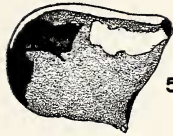
Figs. 52-54. *Chryso ribeirao* sp. n. 52. Female abdomen, lateral view. 53. Female genitalia, dorsal view. 54. Epigynum.

Figs. 55-57. *C. pulchra* (Keyserling). 55. Female abdomen, lateral view. 56. Female genitalia, dorsal view. 57. Epigynum.

Figs. 58-60. *C. backstromi* (Berland). 58. Female. 59. Female genitalia, dorsal view. 60. Epigynum.

Figs. 61, 62. *C. caraca* sp. n. 61. Female genitalia, dorsal view. 62. Epigynum.

Figs. 63-70. *C. compressa* (Keyserling). 63, 65. Female genitalia, dorsal view. 64, 66, 67. Epigynum. 68. Female abdomen, lateral view. 69, 70. Left palpus.



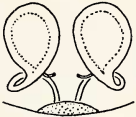
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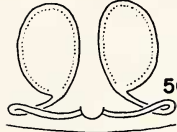
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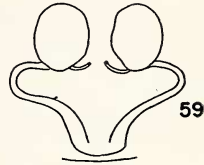
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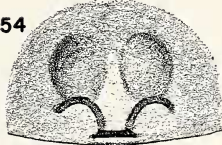
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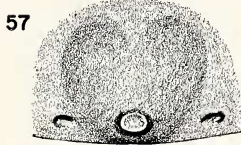
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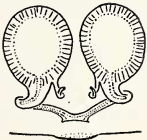
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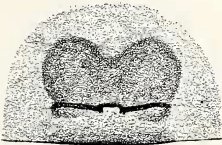
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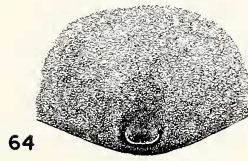
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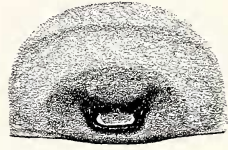
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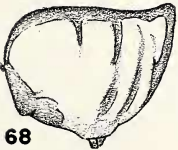
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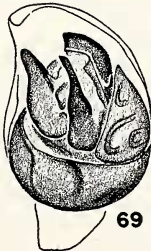
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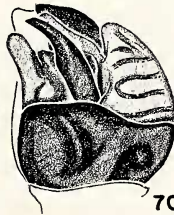
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67

black and a black spot anterior to spinnerets. Anterior median eyes slightly larger than others or subequal, their diameters apart, and one-third from laterals. Posterior median eyes slightly oval, their shorter diameter apart, and one and one-half from laterals. Chelicerae with two teeth on anterior margin. Abdomen usually without grooves. Total length of female from Peru 6.1 mm. Carapace 1.8 mm long, 1.4 mm wide. First femur 5.4 mm; patella and tibia 5.4 mm; metatarsus 5.5; tarsus 1.8 mm. Second patella and tibia 3.0 mm; third 1.8 mm; fourth 3.2 mm. Total length of male from Brazil 4.1 mm. Carapace 1.7 mm long. First femur 6.1 mm; patella and tibia 6.1 mm; metatarsus 3.6 mm; tarsus 1.8 mm. Second patella and tibia 3.3 mm; third 1.8 mm; fourth 3.3 mm.

The shape of the epigynum fossa is variable (Figs. 64, 66, 67). Figures 63, 64 were prepared from the types.

Distribution. Peru to southeastern Brazil.

Records. Peru. *San Martín:* Mishqui-yacu, 1600 m, 20 km NE of Moyobamba, Aug. 1947, ♀ (F. Woytkowski, AMNH). *Huánuco:* Monzón Valley, Tingo María, Oct. 19, 1954, ♀, ♂ (E. I. Schlinger, E. S. Ross, CAS). Brazil. *Minas Gerais:* Matosinhos, ♀ (MNHN). *Guanabara:* Teresópolis, 900-1000 m, March, 1946, ♀ (H. Sick, AMNH). *São Paulo:* São Paulo, Jan. 1960, ♂ (A. M. Nadler, AMNH); Jabaquara, Cidade São Paulo, 700-800 m, Dec. 1945, ♀, ♂ (H. Sick, AMNH). *Santa Catarina:* Nueva Teutonia, lat 27° 11' S, long 52° 23' W, ♀, ♂ (F. Plaumann, SMF).

***Chryso arops* sp. n.**

Figures 29, 30

Type. Male from Teresópolis, 900-1000 m alt., Est. Guanabara, Brazil (H. Sick), in the American Museum of Natural History. The specific name is an arbitrary combination of letters.

Description. Carapace with clypeus, labium, maxillae orange. Sternum black, except anterior portion. Legs orange to gray. Abdomen orange-white with several black spots (Fig. 29). Eyes subequal in size. Anterior median eyes one diameter apart, their radius from laterals. Posterior median eyes one and one-fourth diameters apart, one and one-half from laterals. Chelicerae with one tooth on the anterior margin. Abdomen as illustrated with a hump above spinnerets but without grooves (Fig. 29). Total length 2.4 mm. Carapace 0.98 mm long, 0.93 mm wide. First femur 2.58 mm; patella and tibia 2.50 mm; metatarsus 2.34 mm. Fourth patella and tibia 1.28 mm.

Diagnosis. This species probably belongs to *Chryso*, it is not cer-

tain whether the palpus (Fig. 30) has a radix. The palpal structure separates *C. arops* from other *Chryssso*.

***Chryssso ribeirao* sp. n.**

Figures 52-54

Type. Female from Ribeirão Pires, 700-800 m alt., Est. São Paulo, Brazil, Dec. 1945 (H. Sick), in the American Museum of Natural History. The specific name is a noun in apposition after the type locality.

Description. Carapace yellow-white with some gray around posterior margin. Sternum all black in most specimens, in some only partially. Legs yellow-white with a black band on distal end of first femora and first tibiae. Abdomen with black and white areas and a median dorsal white band (Fig. 52). Eyes subequal in size. Anterior median eyes their diameter apart, almost touching laterals. Posterior median eyes their diameter apart, two-thirds from laterals. Abdomen without grooves (Fig. 52). Total length 2.7 mm. Carapace 0.89 mm long, 0.77 mm wide. First patella and tibia 1.8 mm; second 1.04 mm; third 0.74 mm. fourth 1.22 mm.

Diagnosis. The curved connecting ducts opening near the posterior rim (Figs. 53, 54) separates this species from others. The distance between the opening and the rim is variable.

Records. *Brazil.* *Guanabara:* Teresópolis, March 1946, 3 ♀ paratypes (H. Sick, AMNH).

Chryssso pulchra (Keyserling), new combination

Figures 55-57

Achaea signata Keyserling, 1891, *Die Spinnen Amerikas*, Brasilianische Spinnen, 3: 199, pl. 7, fig. 143, ♀. Female type from Alto da Serra do Novo Friburgo [Nova Friburgo, Est. Guanabara], Brazil in the British Museum, Natural History, examined. NEW SYNONYMY.

Achaea pulchra Keyserling, 1891, *op. cit.*, p. 200, pl. 7, fig. 144, ♀. Female type from Alto da Serra do Novo Friburgo [Nova Friburgo, Est. Guanabara], Brazil in the British Museum, Natural History, examined.

Theridion pulchrum, — Roewer, 1942, *Katalog der Araneae*, 1: 497.

Theridion signatellum Roewer, 1942, *op. cit.*, p. 498. New name for *signata*, thought to be preoccupied by *Theridion signata* Walckenaer, 1805. NEW SYNONYMY.

Comments. Although *signata* has page priority, it will help nomenclatural stability to use the name *pulchra*, since *Theridion signata* is preoccupied and some authors might consider *Chryssso* and *Theridion* synonymous. The types of *signata* and *pulchra* differ only in the coloration of the abdomen, a variable character. *Chryssso pulchra* has the

dorsum of the abdomen black, the sides white, and the venter yellowish without pigment (Fig. 55). The carapace and palpi of this species are black. The illustrations were prepared from the types of *Achaea pulchra*.

***Chryso caraca* sp. n.**

Figures 61, 62

Type. Female from Caraca, Minas Gerais, Brazil (E. Gounelle), in the Muséum National d'Histoire Naturelle, Paris (no. 8881). The specific name is a noun in apposition after the type locality.

Description. Carapace yellow. Sternum yellow, gray or black. Legs yellow, sometimes with irregular black marks. Abdomen with a median longitudinal dorsal white band and white patches on sides; a black spot on each side of posterior tip and sometimes a black patch on each side. Carapace fairly high. Anterior median eyes slightly smaller than others, their diameter apart, one-quarter from laterals. Posterior median eyes one diameter apart, their radius from laterals. Chelicerae with two teeth on anterior margin, probably none posterior. Abdomen barely longer than high. Total length 2.9 mm. Carapace 0.98 mm long, 0.79 mm wide. First femur, 1.71 mm; patella and tibia, 1.69 mm; metatarsus, 1.43 mm; tarsus, 0.62 mm. Second patella and tibia, 1.00 mm; third, 0.59 mm; fourth, 1.12 mm.

Diagnosis. The opening of the epigynum is bordered by an anterior lip (Fig. 62) unlike *C. pulchra*; the shorter, straighter ducts (Fig. 61) separate this species from *C. ribeirao*.

Records. 3 paratypes collected with type.

Chryso backstromi (Berland), new combination

Figures 58-60

Theridion bäckströmi Berland, 1924, The Natural History of Juan Fernandez and Easter Island, 3: 426, figs. 4-6, ♀. Female type from Juan Fernandez Island, [Chile] in the Naturhistoriska Riksmuseum, Stockholm, examined.

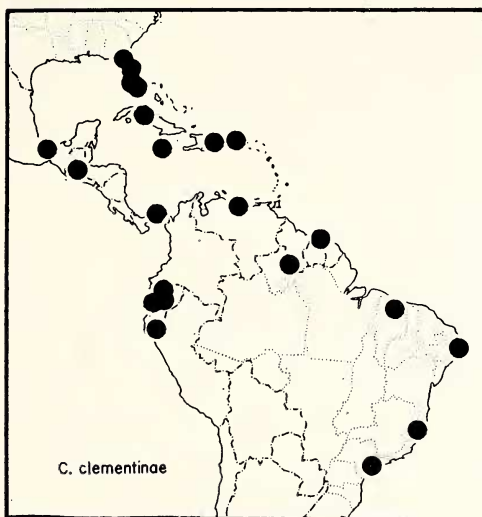
Description. Yellow-white with white and black markings (Fig. 58). Legs yellow-white with black rings on ends of femora and tibiae of fourth leg. Anterior median eyes smaller than others, a little more than one diameter apart, their radius from laterals. Posterior eyes two-thirds their diameter apart. Eyes appearing white and relatively large. Chelicerae without teeth. Abdomen with a hump (Fig. 58). Total length 2.5 mm. Carapace, 1.1 mm long, 1.0 mm wide. First femur, 2.2 mm; patella and tibia, 2.2 mm; metatarsus, 2.0 mm; tarsus, 0.9 mm. Second patella and tibia, 1.3 mm; third, 0.9 mm; fourth 1.5 mm.

Chryso clementinae (Petrunkevitch), new combination

Figures 71-75; Map 1

Meotipa clementinae Petrunkevitch, 1930, Trans. Connecticut Acad. Sci., 30: 212, fig. 61, ♀. Female type from Bayamón, Puerto Rico, in Petrunkevitch personal collection. Schmidt, 1956, Zool. Anz., 15: 240. [Not Bryant, 1940, Bull. Mus. Comp. Zool., 86: 314, figs. 79, 80, ♂].

Description. Color white, with narrow reddish line in thoracic region, some scattered black spots on venter of legs and white pigment spots and some scattered small spots on dorsum of abdomen. Eyes subequal in size. Anterior median eyes a little more than one diameter



Map. 1. Distribution of *Chryso clementinae* (Petrunkevitch).

apart, almost touching laterals. Posterior eyes separated by about one diameter. Abdomen often with several strong feather shaped (? movable) spines near tip (Fig. 71). Epigynum with two dark spots in a lightly sclerotized area (Fig. 73). Male palpus with a short embolus and large conductor (Figs. 74, 75). Total length of a female from Puerto Rico 2.3 mm. Carapace 0.85 mm long, 0.78 mm wide. First femur, 2.45 mm; patella and tibia, 2.31 mm; metatarsus, 1.51 mm; tarsus, 0.61 mm. Second patella and tibia, 1.30 mm; third, 0.81 mm; fourth, 1.55 mm. Total length of a male from Venezuela 2.0 mm. Carapace 1.00 mm long, 0.78 mm wide. First femur 3.60 mm; patella and tibia, 3.35 mm; metatarsus, 3.45 mm; tarsus, 0.91 mm. Second patella and tibia, 2.05 mm; third, 1.13 mm; fourth, 1.96 mm.

Natural History. This species is found on the underside of leaves of shrubs and small trees. Schmidt (1956) reports that it is commonly brought with bananas to Europe.

Distribution. Probably cosmopolitan; the absence of closely related species in America might suggest that it has been introduced. (Schmidt, 1956, records having obtained specimens with fruit from Guatemala, Colombia, French West Africa and Belgian Congo).

Records. Florida. Alachua Co.: Gainesville (H. K. Wallace, Hubbell, AMNH). Dade Co.: Kendall (A. M. Nadler, AMNH). Highlands Co.; 3 mi. S of Lk. Istokpoga (A. M. Nadler, AMNH). Seminole Co.: near Geneva (W. J. Gertsch, AMNH). *Mexico. Veracruz.* 30 km S of Jesús Carranza; Lake Catemaco, 300 m (C. P. Vaurie, AMNH). *Panama Canal Zone.* Pedro Miguel; Corozal; Barro Colorado Island; Summit; France Field (all A. M. Chickering). *Cuba.* Vega Alta, Santa Clara (P. Bermudez); Soledad, Las Villas (P. J. Darlington). *Jamaica.* Mona, St. Andrew Par.; Gastonbury, Trelawny Par.; Rio Cobre Gorge, St. Catherine Par.; Ewarton, St. Catherine Par. (all A. M. Chickering); Kinloss (A. M. Nadler, AMNH). *Dominican Republic.* near Ciudad Trujillo (A. M. Nadler, AMNH); Boca Chica (A. M. Nadler, AMNH). *Puerto Rico.* Rio Piedras (A. M. Nadler, AMNH). *Venezuela. Aragua:* Maracay; Rancho Grande (A. M. Nadler, AMNH). *Dto. Federal:* Caracas (A. M. Nadler, AMNH). *British Guiana.* Sauri-Wau River near Rio Tacutae (W. G. Hassler, AMNH). *Surinam:* Paramaribo (A. M. Nadler, AMNH). *French Guiana.* Cayenne (A. M. Nadler, AMNH). *Ecuador. Pichincha:* 35 km NW of Santo Domingo de los Colorados (A. M. Nadler, AMNH). *Tun-*

EXPLANATION OF PLATE 17

Figs. 71-75. *Chryso clementinae* (Petrunkevitch). 71. Female, lateral view. 72. Female genitalia, dorsal view. 73. Epigynum. 74. Left palpus. 75. Palpus expanded, submesal view.

Figs. 76-78. *C. questona* sp. n. 76. Female abdomen, lateral view. 77. Female genitalia, dorsal view. 78. Epigynum.

Fig. 79. *C. melba* sp. n., palpus.

Figs. 80, 81. *C. vesiculosa* (Simon) (Philippines), Epigynum.

Figs. 82, 83. *C. alecula* sp. n. 82. Female genitalia, dorsal view. 83. Epigynum.

Figs. 84, 85. *C. arima* sp. n. 84. Female genitalia, dorsal view. 85. Epigynum.

Figs. 86-90. *C. silva* sp. n. 86. Female. 87. Female genitalia, dorsal view. 88. Epigynum. 89. Palpus. 90. Palpus expanded, subventral view.

Figs. 91-95. *C. volcanensis* sp. n. 91. Female. 92. Female genitalia, dorsal view. 93. Epigynum. 94. Palpus expanded, cymbium removed, dorsal view. 95. Palpus. (C, conductor; E, embolus; M, median apophysis; P, paracymbium; R, radix; Y, cymbium).



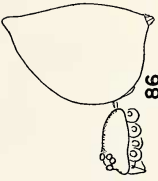
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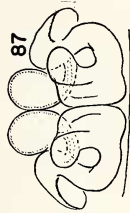
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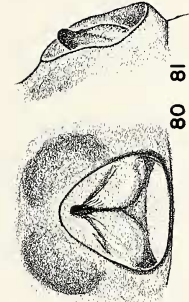
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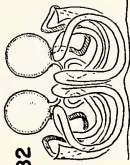
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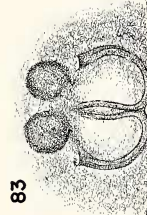
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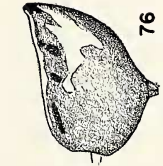
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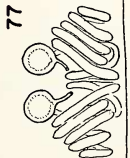
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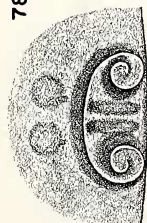
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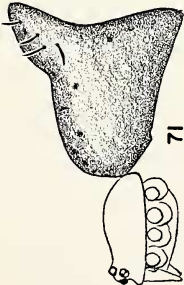
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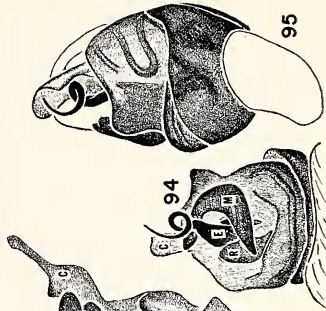
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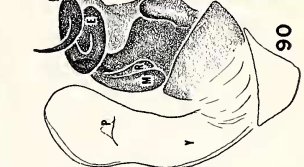
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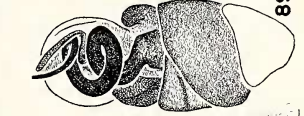
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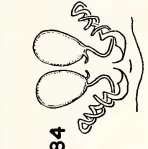
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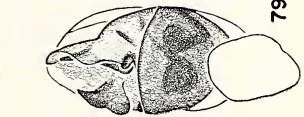
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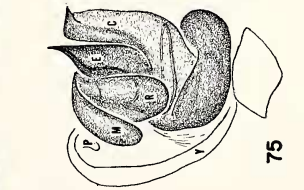
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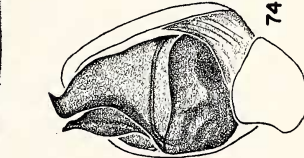
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74

gurahua: Baños (H. E. Frizzell); Puñapi (H. E., D. L. Frizzell). *Guayas*: Milagro (H. E., D. L. Frizzell). *Peru*. "San Martin" (J. C. Pallister). *Piura*: Bellavista, Prov. Jean, (D. L. Frizzell). *Brazil*. *Maranhão*: São Luís (A. M. Nadler, AMNH). *Pernambuco*: Recife (A. M. Nadler, AMNH). *Espírito Santo*: Santa Teresa (A. M. Nadler, AMNH). *São Paulo*: São Paulo (A. M. Nadler, AMNH). *Paraguay*. San Luis [?].

***Chryso melba* sp. n.**

Figure 79

Type. Male from Summit, Panama Canal Zone, July 21-29, 1950 (A. M. Chickering) in the Museum of Comparative Zoology. The specific name is an arbitrary combination of letters.

Description. Yellow-white with a dusky median band on carapace, ends of femora, on patella, and distal ends of tibiae and metatarsi. Dorsum of abdomen with two rows of about ten dusky bars. Eyes subequal in size; anterior median eyes, one and one-third diameters apart, their radius from laterals. Posterior median eyes one and one-half diameters apart, a little more than one from laterals. Chelicerae with two teeth on anterior margin. Abdomen longer than wide or high; highest above spinnerets. Total length 2.2 mm. Carapace 1.0 mm long, 0.9 mm wide. First femur, 3.5 mm; patella and tibia, 3.5 mm; metatarsus, 3.7 mm; tarsus, 1.2 mm. Second patella and tibia, 2.0 mm; third 0.9 mm; fourth, 1.7 mm.

Diagnosis. The palpal structure (Fig. 79) separates this species from *C. clementinae*.

***Chryso alecula* sp. n.**

Figures 82, 83

Type. Female from El Valle, Panama, July 1936 (A. M. Chickering) in the Museum of Comparative Zoology. The specific name is an arbitrary combination of letters.

Description. Yellow-white with a dusky median band on carapace, small dark spots on venter of legs and white pigment spots and some dusky marks on dorsum of abdomen. Eyes subequal in size. Anterior median eyes their diameter apart, one-fourth from laterals. Posterior median eyes one-half diameter apart, one-fourth from laterals. Shape of abdomen like that of *C. silva* (Fig. 86). Total length of female, 1.6 mm. Carapace, 0.68 mm long 0.65 mm wide. First femur, 1.71 mm; patella and tibia, 1.61 mm; metatarsus, 1.43 mm; tarsus, 0.50

mm. Second patella and tibia, 1.06 mm; third, 0.71 mm; fourth, 1.17 mm.

Diagnosis. The long loosely coiled ducts of the genitalia (Figs. 82, 83) separate this species from *C. arima*.

Records. *Panama:* El Valle, July 1936, ♀ paratypes (A. M. Chickering).

***Chryso arima* sp. n.**

Figures 84, 85

Type. Female from Simla, near Arima, Trinidad, 28 Dec. 1954 (A. M. Nadler) in the American Museum of Natural History. The specific name is a noun in apposition after the type locality.

Description. Yellow-white with white pigment spots on dorsum of abdomen. Eyes subequal in size. Anterior median eyes separated by one diameter, one-fourth from laterals. Posterior eyes separated by one diameter. Total length of female 1.6 mm. Carapace, 0.63 mm long, 0.52 mm wide. First femur, 1.42 mm; patella and tibia, 1.28 mm; metatarsus, 0.98 mm; tarsus, 0.50 mm. Second patella and tibia, 0.80 mm; third, 0.53 mm; fourth, 0.98 mm.

Diagnosis. The narrow, tightly coiled ducts of the genitalia and the median opening (Figs. 84, 85) separate this species from *C. alecula*.

Record. *Trinidad.* Simla near Arima, ♀ paratype (A. M. Nadler).

***Chryso silva* sp. n.**

Figures 86-90

Type. Male from Forest Reserve, Panama Canal Zone, 25-28 July 1954 (A. M. Chickering) in the Museum of Comparative Zoology. The specific name is an arbitrary combination of letters.

Description. Yellow-white with a median longitudinal dusky band on carapace; abdomen with white pigment patches on dorsum, dusky on sides. Anterior median eyes subequal or slightly larger than others, three-quarters diameter apart, almost touching laterals. Posterior eyes separated by one-third their diameter. Abdomen much higher than long in female (Fig. 86). Total length of a female, 1.6 mm. Carapace 0.65 mm long, 0.59 mm wide. First femur, 1.56 mm; patella and tibia, 1.43 mm; metatarsus, 1.30 mm; tarsus, 0.45 mm. Second patella and tibia, 0.88 mm; fourth, 0.97 mm. Total length of male 1.4 mm. Carapace, 0.66 mm long, 0.66 mm wide. First femur, 1.70 mm; patella and tibia, 1.75 mm; metatarsus, 1.53 mm; tarsus, 0.52 mm. Second patella and tibia, 1.09 mm; third, 0.63 mm; fourth, 0.98 mm.

Diagnosis. The larger diameter and shortness of the female ducts (Figs. 87, 88) separate this species from *C. alecula* and *C. arima*. The large coiled embolus of the palpus (Fig. 89) is distinctive.

Natural History. This species is found by beating vegetation.

Records. *Panama.* Porto Bello, ♀ (A. M. Chickering). *Panama Canal Zone.* Forest Reserve, ♂ paratype (A. M. Chickering); Summit, ♀ paratype (A. M. Chickering, A. M. Nadler, AMNH); Barro Colorado Island, ♀, ♂ paratypes (A. M. Chickering, A. M. Nadler, AMNH); Madden Dam (A. M. Chickering); Ft. Randolph (A. M. Chickering). *Ecuador. El Oro:* Río Jubanes, Pasaje, Oct. 23, 1942, ♂ (R. Walls).

***Chryso volcanensis* sp. n.**

Figures 91-95

Thwaitesia vittata, —Banks, 1929, Bull. Mus. Comp. Zool., 69: 86. Not *C. vittata* O. P.-Cambridge.

Type. Male from El Volcán, Panama, Aug. 9-14, 1950 (A. M. Chickering) in the Museum of Comparative Zoology. The species is named after the type locality.

Description. Carapace, sternum, legs yellow-white. Legs with dark bands on middle and ends of segments. Abdomen yellow-white with white pigment areas on dorsum, sometimes with small black spots (Fig. 91). Anterior median eyes one and one-half diameters apart, their radius from laterals in female; one diameter apart, one-third diameter from laterals in male. Posterior median eyes a little more than one diameter apart, one from laterals. Total length of females 3.5-4.5 mm. One female measured 3.7 mm total length. Carapace, 1.2 mm long, 0.8 mm wide. First femur, 5.0 mm; patella and tibia, 5.0 mm; metatarsus, 5.4 mm; tarsus, 1.4 mm. Second patella and tibia, 2.7 mm; third, 1.3 mm; fourth, 2.6 mm. Total length of a male 2.5 mm. Carapace 1.2 mm long, 1.0 mm wide. First femur, 5.9 mm; patella and tibia, 6.0 mm; metatarsus, 7.5 mm; tarsus, 1.7 mm. Second patella and tibia, 3.6 mm; third, 1.4 mm; fourth, 2.6 mm.

Diagnosis. The shorter ducts and embolus (Figs. 92-95) distinguish this species from *C. questona*. The epigynum (Fig. 93) has an indistinct shallow depression of variable shape. The small palpal embolus (Figs. 94, 95) separate the species from *C. silva*.

Records. *Costa Rica:* Santa María Dota (Tristan). *Panama.* El Volcán, ♀, ♂ paratypes (A. M. Chickering).

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